

REMARKS/ARGUMENTS

Favorable reconsideration of this application, as presently amended and in light of the following discussion, is respectfully requested.

Claims 21-40 are pending in the present application with Claims 31-38 withdrawn from consideration. Claims 21 and 40 are amended by the present amendment.

In the outstanding Office Action, Claims 21-26 and 30 were rejected under 35 U.S.C. § 102(b) as anticipated by Terashima (U.S. Patent No. 5,289,019); Claim 40 was rejected under 35 U.S.C. § 102(b) as anticipated by Tsukuda et al. (U.S. Patent No. 6,054,748, herein “Tsukuda”); Claim 27 was rejected under 35 U.S.C. § 103(a) as unpatentable over Terashima in view of Kitada et al. (U.S. Patent No. 6,404,032, herein “Kitada”); Claims 28 and 29 were rejected under 35 U.S.C. § 103(a) as unpatentable over Terashima in view of Sakamoto (U.S. Patent No. 5,841,181); and Claim 39 was rejected under 35 U.S.C. § 103(a) as unpatentable over Terashima.

Initially, it is noted that the outstanding Office Action requests at page 3, first full paragraph, that Applicants withdraw the traversal of the election requirement because the “Examiner has exhibited” certain requirements of MPEP § 808.02. However, Applicants note that MPEP § 808.02 does not support the Examiner’s request. Also, it is noted that Applicants are entitled under MPEP § 803 to request that the claims be examined together. Thus, Applicants believe that the traversal of the restriction requirement is proper and there is no basis or duty on Applicants to withdraw the traversal.

Regarding the rejection of Claims 21-26 and 30 under 35 U.S.C. § 102(b) as anticipated by Terashima, independent Claim 21 has been amended to recite a trench, a gate insulating film covering an inner surface of the trench, and a gate electrode formed in the trench and surrounded by the gate insulating film. The claim amendments find support in

Figure 28 and its corresponding description in the specification. No new matter has been added.

Briefly recapitulating, amended Claim 21 is directed to a semiconductor device that includes a semiconductor substrate, a first main electrode provided on a first main surface of the semiconductor substrate, a second main electrode provided on a second main surface of the semiconductor substrate, a trench that extends from the first main surface of the semiconductor substrate towards the second main surface, a gate insulating film covering an inner surface of the trench, and a gate electrode buried in the trench and surrounded by the gate insulating film. In a non-limiting example, Figure 28 shows the semiconductor substrate 8, the first main electrode 908, the second main electrode 916a, the trench 903, gate insulating film 904, and the gate electrode 905.

Turning to the applied art, Terashima shows in Figure 6 a semiconductor device having a substrate 2B with first and second main surfaces. An electrode 8 is formed on the first main surface and a second electrode 9 is formed on the second main surface of the substrate 2B. However, Terashima does not teach or suggest a trench in which a gate electrode is formed. Terashima discloses that a gate electrode 6 is formed above the substrate 2B, between the first main surface of the substrate 2B and the first electrode 8, along the first main surface of the substrate 2B, which is different from amended Claim 21. In other words, no trench is formed in Terashima that extends from the first main surface of the semiconductor substrate to the second main surface as required by amended Claim 21.

Accordingly, it is respectfully submitted that amended independent Claim 21 and each of the claims depending therefrom patentably distinguish over the applied art.

Regarding the rejection of Claim 40 under 35 U.S.C. § 102(b) as anticipated by Tsukuda, independent Claim 40 has been amended to include a trench, a gate insulating film

covering an inner surface of the trench, and a gate electrode formed in the trench and surrounded by the gate insulating film.

Tsukuda, similar to Terashima, describes a semiconductor device that does not have a trench in which a gate electrode is formed. In fact, Tsukuda does not teach at all a gate electrode. Accordingly, it is respectfully submitted that independent Claim 40 patentably distinguishes over Tsukuda.

The remaining applied references have been considered but do not cure the deficiencies of Terashima and Tsukuda discussed above with regard to independent Claims 21 and 40. Accordingly, it is respectfully submitted that the rejected dependent claims are also allowable.

Consequently, in light of the above discussion and in view of the present amendment, the present application is believed to be in condition for allowance and an early and favorable action to that effect is respectfully requested.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, P.C.



Eckhard H. Kuesters
Attorney of Record
Registration No. 28,870

Customer Number
22850

Tel: (703) 413-3000
Fax: (703) 413 -2220
(OSMMN 06/04)

Joseph Wrkich
Registration No. 53,796